

non-selected word lines WL00, WL01 and WL03 through WL0n-1 and the non-selected bit lines BL00, BL01 and BL03 through BL0n-1 are set as $V_{w1} = V_{b1} = 0$ V. As a result, the resistance value of the variable resistor 30 of the selected memory cell 10 is changed from an initial state. Thus, data corresponding to the amount of change in the resistance value of the variable resistor 30 is written to the selected memory cell 10.

10 For erasing data stored in the selected memory cell 10, for example, $V_{w1} = 3.0$ V is applied to the word line WL02 and $V_{b1} = -5.0$ V is applied to the bit line BL02. The voltages applied to the non-selected word lines WL00, WL01 and WL03 through WL0n-1 and the non-selected bit lines BL00, BL01 and BL03 through BL0n-1 are set as $V_{w1} = V_{b1} = 0$ V. As a result, the resistance value of the variable resistor 30 of the selected memory cell 10 is ^{decreased} returned to the initial state (data erase state). Thus, data corresponding to the amount of change in the resistance value of the variable resistor 30 is erased from the selected memory cell 10.

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As described above, in the memory array 50, the data write operation and the data erase operation are